

H



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

MF

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/390,289 09/03/99 DUGAN

J 709.36924X00

020457 IM52/1024
ANTONELLI TERRY STOUT AND KRAUS
SUITE 1800
1300 NORTH SEVENTEENTH STREET
ARLINGTON VA 22209

EXAMINER

BEFUMO, I

ART UNIT

PAPER NUMBER

1771
DATE MAILED:

10/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/390,289

Applicant(s)

DUGAN, JEFFREY S.

Examiner

Jenna-Leigh Befumo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-21, 23-54 and 61-72 is/are pending in the application.
- 4a) Of the above claim(s) 32-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-21, 23 and 61-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendment A, submitted as Paper No. 5 on August 20, 2001, has been entered. Claims 1 – 8, 22, and 55 – 60 have been cancelled. Claims 9, 12, 15, 20, 23, 29, and 30 have been amended and claims 61 – 72 have been added. Therefore, the pending claims are 9 – 21, 23 – 54, and 61 – 72. Claims 32 – 54 are withdrawn from further consideration as being drawn to a nonelected invention.
2. The arguments in Amendment A (page 10 – 13) are sufficient to withdraw the rejection of claims 22, 23, 30, and 31 under 35 USC 112 1st paragraph set forth in section 7 of the previous Office Action. It is clear from the arguments that by melting the second polymer a fabric is produced wherein the second polymer is located at the crossing points of the first polymer.
3. The 35 USC 112 rejections and the prior art rejections to claims 1 – 8 and 22 are now moot due to their cancellation.
4. Amendment A is sufficient to withdraw the 35 USC 112 2nd rejections set forth in sections 11, 12, and 14. Further, the arguments in Amendment A (page 13 – 18) are sufficient to withdraw the 35 USC 112 2nd rejections set forth in sections 13 and 15 – 17 of the previous Office Action.

Election/Restrictions

5. Applicant's election with traverse of Group I in Paper No. 5 is acknowledged. The traversal is on the grounds that claims 55 – 60 were not included with the article claims, but instead were grouped with the non-elected method claims. First, the restriction requirement in the previous Office Action was incorrect since claims 55 – 60 were not originally listed with

Art Unit: 1771

either group I or group II. They should have been grouped with Group II as evidenced by the fact that were group with the non-elected method claims later on in the Office Action. Second, since claims 55 – 60 were cancelled the traverse to the restriction is moot. The newly added product-by-process claims, rewritten so they do not depend from the method claims, are examined with the article claims in Group I.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

6. Figures 1, 2a, and 2b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Specification

7. The disclosure is objected to because of the following informalities: On pages 13 and 14, the type of polymers used as the high melting and low melting polymer material is discussed. Polyethylene terephthalate (PET) is originally listed as the low melting polymer (page 14, line 4 – 5). However, further on, page 14, line 26, PET is listed as the high melting polymer material. Also, in claim 29, PET is listed as the first polymer material, i.e., the high melting material. Which group does PET belong to?

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled

Art Unit: 1771

in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The weight range of the nonwoven fabric in claim 12, as amended, is 0.1 to 40 oz/yd². The end point 0.1 is not supported by the specification.

10. Claim 61 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not teach that the second polymer material is “evenly dispersed through the fiber-containing material at said cross-over points.” Nor does the specification teach that the cross-over points are “evenly dispersed” through the fiber-containing material. The specification does teach that the second polymer material is evenly dispersed throughout the fiber-containing material before it is melted (page 9, lines 9 – 14). However, this does not imply that the second polymer material will be evenly dispersed in the fiber-containing material after it has been melted since the second polymer melts and migrates to the cross-over points.

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claim 9 – 22, 24 – 31, and 61 – 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. The phrase “different” in claim 9 is indefinite. How are the polymers “different” from each other? Are the polymers different types of polymer material? Or, are the polymers, the same type of polymer material with different melting points, different percents of crystallization

Art Unit: 1771

or other properties? Claims 30 and 67 are similarly rejected. Claims 10 – 29, 31, 61 – 66, and 68 – 72 are rejected due to their dependency on claims 9, 30, or 67.

14. The phrase “evenly dispersed ... at said cross-over points” in claim 61 is indefinite. Does this mean that the second segments are “evenly dispersed” at the cross-over points, thus each cross-over point has about the same amount of second polymer material? Or, are the cross-over points “evenly dispersed” throughout the fiber-containing material, so that when the second polymer material is melted it will also be “evenly dispersed” throughout the fiber-containing material? Or, is the second polymer material “evenly dispersed” throughout the fiber-containing material regardless of the dispersion of cross-over points? In this case, how is it that the second polymer material “evenly dispersed” and located at the cross-over points at the same time?

Claim Rejections - 35 USC § 102

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

16. Claims 9, 11, 12, 14 – 20, 24 – 30, 63 – 70, and 72 are rejected under 35 U.S.C. 102(b) as being anticipated by Murase et al. (5,718,972).

The features of Murase et al. have been set forth in sections 19 – 21 of the previous Office Action. First, it is noted that the claims recite various process limitations such as completely or partially splitting the fibers and melting the second polymer component of the multi-component fibers in a nonwoven fabric. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art,

Art Unit: 1771

the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

In this case, although the Applicant claims fibers that are partially or completely split before melting, the final product will comprise fibers that are bound together by the melted filaments comprising the second polymer component. Hence, in the final product the first and second polymer filaments, whether they were partially or completely split from each other before melting, will only be partially split after melting, since the first polymer filaments are bound together by, and thus connected to, the second polymer components. Also, whether the filaments are split before melting or not they will split upon melting since the components that hold the filaments together, i.e., the second polymer material melts, causing it to flow, allowing the components to split.

Additionally, it is noted that the final product comprises multiple filaments bound together by a second polymer material. In this case, the Murase et al. reference discloses a nonwoven material bound together by a second polymer material that has been melted. Based on Applicant's disclosure and arguments, the second polymer component collects at the cross-over points because it has been melted, allowing the material to flow. The Murase et al. reference discloses that the second polymer component is molten (abstract and column 6, line 22) or that heat is applied to the nonwoven material thereby melting the second polymer component (column 3, lines 20 – 22). The terms “melting” and “molten” both would indicate that the second polymer material has been heated to the point where it would flow to the cross-over

points. Since the Applicant (amendment A, pages 10 – 13) has argued that the second polymer material has been made to concentrate at the cross-over points or encapsulate the cross-over points by melting the binder, the melted second polymer material in the Murase et al. invention would inherently concentrate at the cross-over points and encapsulate the cross-over points.

Finally, in claims 9 and 30, it is recited that the second material would concentrate at the cross-over points. This recitation does not prevent the second material from also locating elsewhere in the non-woven. In the Murase et al. invention, the spot bonding areas will have the second polymer material, or binder material, concentrated at the cross-over points, since the component has been melted. Thus, it meets the limitations recited in the claims even though the second material will still be in fiber form where the nonwoven has not been spot bonded.

Therefore, claims 9, 11, 12, 14 – 20, 24 – 30, 63 – 70, and 72 are anticipated by Murase et al.

17. Claims 9, 11, 13 – 21, 23 – 31, 61 – 69, and 72 are rejected under 35 U.S.C. 102(b) as being anticipated by Heagle et al. (5,290,449).

Heagle et al. discloses a filter material comprising a plurality of interlocked textile fibers with deniers between 0.05 and 0.75 and lengths between 3 mm to 15 mm, a plurality of glass fibers, with a diameter between 0.1 and 5 microns, and a thermoplastic binder disposed at least at the cross-over portions (abstract). Thus, the textile fibers, corresponding to the Applicant's first polymer material, are staple length microfibers. Heagle et al. disclose that certain types of binders, which corresponds to the Applicant's second polymer material, can be added to a web and then heated to uniformly distribute these binders and interlock the fibers (column 3, lines 1 – 9). Additionally, Heagle et al. teach that the thermoplastic binders tend to migrate to fiber cross-over portions (column 9, lines 1 – 3). The binder is deposited from an emulsion at the cross-over

Art Unit: 1771

positions instead of other places through out the material (column 9, lines 30 – 35). Thus, the binder would inherently concentrate at the cross-over points and be substantially only at the cross-over points. The preferred thermoplastic binders have a melting point below 300°F (column 8, lines 58 – 63). Heagle discloses that the thermoplastic binder can be polyvinyl alcohol, polybutadiene, and polyethylene (column 9, lines 4 – 9). The textile fibers can be polyethylene terephthalate. (Example 1). The nonwoven filter material is produced by a wet-laid process (column 15, lines 67 – 68).

As noted above, although the final product is defined by the process of making the nonwoven web, the method limitations do not have patentable weight at this time, since the determination of patentability is based on the final product, i.e., the nonwoven web comprising binder at the cross-over points. The fibers in the web would be split from each other except at the cross-over points, since the web was formed by blending the separate fibers together and then adding the binder. Therefore, claims 9, 11, 13 – 15, 18 – 21, 23 – 25, 29 – 31, 61 – 65, 67 – 69, and 72 are anticipated by Heagle et al.

Since Heagle et al. disclose using the same types of polymer materials as the Applicant for the textile fibers and binder component, the polymers will inherently be within the claimed melting temperature ranges and claimed difference between melting temperature range.

Therefore, claims 16, 17, and 66 are anticipated by Heagle et al.

Finally, claims 26 – 28 are rejected with claim 9, since no further structure is added to the fiber-containing material by reciting it is a wiping cloth, synthetic leather, or synthetic suede.

18. Claims 9, 11 – 21, 23 – 31, and 61 – 72 are rejected under 35 U.S.C. 102(b) as being anticipated by Hwang (4,514,455).

Hwang discloses a nonwoven fabric comprising a batt of crimped polyester filaments (abstract). The staple fiber batt comprises a mixture of light fibers, corresponding to the Applicant's first polymer material, having a dtex in the range of 1 to 3, or .9 to 2.7 denier, and heavy fibers with a dtex at least two times the light fiber, with a maximum dtex of 20, or 18 denier (column 3, lines 54 – 65). The staple fiber batt also comprises as much as 15% of binder fibers, corresponding to the Applicant's second polymer material (column 4, lines 5 – 7). Hwang discloses that upon heating the binder fibers lose their identity as fibers by coalescing on the surfaces or at the cross-overs of the other fibers to bond the batt (column 4, lines 7 – 11). Bonding enhances the dimensional stability of the fiber batt (column 4, lines 11 – 12). The heavy and light fibers are polyester (column 3, lines 34 – 35). The binder fibers are thermoplastic material (column 5, lines 26 – 29). In example 1, the staple fiber batt is formed by air-laying the fibers together in a batt weighing 4 oz/yd² (column 7, lines 8 – 10). Additionally, the examples teach adding binder fibers made of copolyester polymer (column 8, lines 6 – 8).

Finally, Hwang notes that the binder fibers used in the examples melt and are no longer present in fiber form (column 9, line 34). Thus, the melt binder fiber would inherently concentrate at the cross-over points of the other fibers. The binder material would also inherently be substantially only at the cross-over points and encapsulate the cross-over points.

Again, although the process limitations define the final product, determination of patentability is based on the final product. Thus, the limitations drawn using multi-filament fibers, splitting the fibers, and melting the fibers along with when the fibers are split and melted are not given patentable weight at this time. Therefore, claims 9, 11 – 15, 18 – 21, 23, 24, 29 – 31, 61 – 65, and 67 – 72 are anticipated by Hwang.

Since Hwang disclose using the same types of polymer materials as the Applicant for the textile fibers and binder component, the polymers will inherently be within the claimed melting temperature ranges and claimed difference between melting temperature range. Therefore, claims 16, 17, and 66 are anticipated by Heagle et al.

Finally, claims 25 – 28 are rejected with claim 9, since no further structure is added to the fiber-containing material by reciting it is a filter material, a wiping cloth, synthetic leather, or synthetic suede.

Claim Rejections - 35 USC § 102/103

19. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

20. Claims 70 and 71 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Heagle et al.

The features of Heagle et al. have been set forth above. Although Heagle et al. does not explicitly teach the limitations that the binder material encapsulates the cross-over points, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. thermoplastic binder) and in the similar production steps (i.e. the binder is applied to a web in a liquid state and migrates to the cross-over points) used to produce the nonwoven fabric. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594. In the alternative, the claimed limitation would obviously have been provided by the process disclosed by Heagle et al. Since the binder material randomly migrates to the cross-over points, it would not collect on only one-side of the cross-over points. Thus, the binder would be collected on all sides of the cross-over points,

Art Unit: 1771

which would encapsulate said cross-over points and bind the fibers to each other. Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

Claim Rejections - 35 USC § 103

21. Claims 10 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Murase et al. for the reasons of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenna-Leigh Befumo whose telephone number is (703) 605-1170. The examiner can normally be reached on Monday - Friday (8:00am - 4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Jenna-Leigh Befumo
October 22, 2001



CHERYL A. JUSKA
PRIMARY EXAMINER